



## DECLARATION

**ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL,  
DIVISIONAL, CONTINUATION OR C-I-P)**

As a below named inventor, I hereby declare that:

### TYPE OF DECLARATION

This declaration is of the following type: (check one applicable item below)

- original
- design
- supplemental

**NOTE:** *If the declaration is for an international application being filed as a divisional, continuation or continuation-in-part application, do not check next item; check appropriate one of last three items.*

- national stage of PCT

**NOTE:** *If one of the following 3 items apply, then complete and also attach added pages for divisional, continuation or c-i-p.*

- divisional
- continuation
- continuation-in-part (C-I-P)

### INVENTORSHIP IDENTIFICATION

**WARNING:** *If the inventors are each not the inventors of all the claims, an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted.*

My residence, post office address and citizenship are as stated below next to my name. I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

### TITLE OF INVENTION

INFILTRATING A POWDER METAL SKELETON BY A SIMILAR ALLOY WITH DEPRESSED MELTING POINT EXPLOITING A PERSISTENT LIQUID PHASE AT EQUILIBRIUM, SUITABLE FOR FABRICATING STEEL PARTS

### SPECIFICATION IDENTIFICATION

the specification of which: (*complete (a), (b) or (c)*)

- (a)  is attached hereto.
- (b)  was filed on November 26, 2003 under Express Mail No. EV239312557US, attorney docket No. MIT 10327 US, and has been assigned Serial No. 10/723,989.

*NOTE: Amendments filed after the original papers are deposited with the PTO which contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 CFR 1.67.*

(c)  was described and claimed in PCT International Application No. \_\_\_\_\_ filed on \_\_\_\_\_ and as amended under PCT Article 19 on \_\_\_\_\_ (if any).

### **SUPPLEMENTAL DECLARATION (37 C.F.R. § 1.67(b))**

*(complete the following where a supplemental declaration is being submitted)*

I hereby declare that the subject matter of the  
 attached amendment  
 amendment filed on \_\_\_\_\_

was part of my/our invention before the filing date of the original application, above-identified, for such invention.

### **ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR**

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information,

which is material to patentability as defined in 37, Code of Federal Regulations, § 1.56

*(also check the following items, if desired)*

and which is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable Examiner would consider it important in deciding whether to allow the application to issue as a patent, and  
 In compliance with this duty there is attached an information disclosure statement in accordance with 37 CFR 1.98.

### **PRIORITY CLAIM (35 U.S.C. § 119(a)-(d))**

*NOTE: "The claim to priority need be in no special form and may be made by the attorney or agent if the foreign application is referred to in the oath or declaration as required by § 1.63. The claim for priority and the certified copy of the foreign application specified in 35 U.S.C. 119(b) must be filed in the case of an interference (§ 1.630), when necessary to overcome the date of a reference relied upon by the examiner, when specifically required by the examiner, and in all other situations, before the patent is granted. If the claim for priority or the certified copy of the foreign application is filed after the date the issue fee is paid, it must be accompanied by a petition requesting entry and by the fee set forth in § 1.17(i). If the certified copy is not in the English language, a translation need not be filed except in the case of interference; or when necessary to overcome the date of a reference relied upon by the examiner; or when specifically required by the examiner, in which event an English language translation must be filed together with a statement that the translation of the certified copy is accurate." 37 C.F.R. § 1.55(a).*

I hereby claim foreign priority benefits under Title 35, United States Code, §§ 119(a)-(d) of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any

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*(complete (d) or (e))*

(d)  no such applications have been filed.  
(e)  such applications have been filed as follows.

*NOTE: Where item (c) is entered above and the international application which designated the U.S. Itself claimed priority check item (e), enter the details below and make the priority claim.*

**A. PRIOR FOREIGN/PCT APPLICATION(S) FILED WITHIN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS APPLICATION AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. § 119(a)-(d)**

Country (or indicate if PCT)	Application Number	Date of Filing (day, month, year)	Priority Claimed Under 37 USC 119
			<input type="checkbox"/> Yes No <input type="checkbox"/>
			<input type="checkbox"/> Yes No <input type="checkbox"/>
			<input type="checkbox"/> Yes No <input type="checkbox"/>
			<input type="checkbox"/> Yes No <input type="checkbox"/>
			<input type="checkbox"/> Yes No <input type="checkbox"/>

**CLAIM FOR BENEFIT OF PRIOR U.S. PROVISIONAL APPLICATION(S) (34 U.S.C. § 119(e))**

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

Provisional Application Number	Filing Date

**CLAIM FOR BENEFIT OF EARLIER US/PCT APPLICATION(S) UNDER 35 U.S.C. 120**

The claim for the benefit of any such applications are set forth in the attached ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR CONTINUATION-IN PART (C-I-P) APPLICATION.

**ALL FOREIGN APPLICATION(S), IF ANY FILED MORE THAN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION**

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*NOTE: If the application filed more than 12 months from the filing date of this application is a PCT filing forming the basis for this application entering the United States as (1) the national stage, or (2) a continuation, divisional, or continuation-in-part, then also complete added pages to combined declaration and power of attorney for divisional, continuation or C-I-P application for benefit of the prior U.S. Or PCT application(s) under 35 U.S.C. § 120.*

## DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

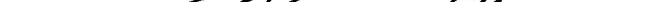
**SIGNATURE(S)**

*NOTE: Carefully indicate the family (or last) name as it should appear on the filing receipt and all other documents.*

**Full name of sole or first inventor**

**Brian** \_\_\_\_\_ **D.** \_\_\_\_\_ **Kernan** \_\_\_\_\_

(GIVEN NAME) \_\_\_\_\_ (MIDDLE INITIAL OR NAME) \_\_\_\_\_ FAMILY (OR LAST NAME) \_\_\_\_\_

**Inventor's signature** 

Date 2/4/04 Country of Citizenship US

**Residence** 276 Massachusetts Avenue, Apt. 311, Arlington, MA 02474

**Post Office Address same**

Full name of second joint inventor, if any

**Emanuel** **M.** **Sachs**

(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

**Inventor's signature**

**Date** \_\_\_\_\_ **Country of Citizenship** US

**Residence** 18 Moreland Avenue, Newton, MA 02459

**Post Office Address same**

**Full name of third joint inventor, if any**

**Samuel M. Allen**

(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

**Inventor's signature** \_\_\_\_\_

**Date** \_\_\_\_\_ **Country of Citizenship** US \_\_\_\_\_

**Residence** 24 Alveston Street, Jamaica Plain, MA 02130

**Post Office Address same**

*(check proper box(es) for any of the following added page(s) that form a part of this declaration)*

Signature for fourth and subsequent joint inventors. NUMBER OF PAGES ADDED  
1.

\* \* \*

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Adam \_\_\_\_\_ M. \_\_\_\_\_ Lorenz \_\_\_\_\_

(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature \_\_\_\_\_

Date \_\_\_\_\_ Country of Citizenship US \_\_\_\_\_

Residence 7 Buckingham Street, Somerville, MA 02143

Post Office Address same \_\_\_\_\_

Full name of fifth joint inventor, if any

(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature \_\_\_\_\_

Date \_\_\_\_\_ Country of Citizenship \_\_\_\_\_

Residence \_\_\_\_\_

Post Office Address \_\_\_\_\_

Full name of sixth joint inventor, if any

(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature \_\_\_\_\_

Date \_\_\_\_\_ Country of Citizenship \_\_\_\_\_

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Country (or indicate if PCT)	Application Number	Date of Filing (day, month, year)	Priority Claimed Under 37 USC 119
			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>
			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>
			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>
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### SIGNATURE(S)

*NOTE: Carefully indicate the family (or last) name as it should appear on the filing receipt and all other documents.*

**Full name of sole or first inventor**

Brian \_\_\_\_\_ D. \_\_\_\_\_ Kernan \_\_\_\_\_  
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

**Inventor's signature** \_\_\_\_\_

**Date** \_\_\_\_\_ **Country of Citizenship** US

**Residence** 276 Massachusetts Avenue, Apt. 311, Arlington, MA 02474

**Post Office Address** same

\_\_\_\_\_

**Full name of second joint inventor, if any**

Emanuel \_\_\_\_\_ M. \_\_\_\_\_ Sachs \_\_\_\_\_  
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

**Inventor's signature** \_\_\_\_\_

**Date** 3/11/04 **Country of Citizenship** US

**Residence** 18 Moreland Avenue, Newton, MA 02459

**Post Office Address** same

\_\_\_\_\_

**Full name of third joint inventor, if any**

Samuel \_\_\_\_\_ M. \_\_\_\_\_ Allen \_\_\_\_\_  
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

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*(check proper box(es) for any of the following added page(s) that form a part of this declaration)*

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Adam \_\_\_\_\_ M. \_\_\_\_\_ Lorenz \_\_\_\_\_  
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature \_\_\_\_\_

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Inventor's signature \_\_\_\_\_

Date \_\_\_\_\_ Country of Citizenship \_\_\_\_\_

Residence \_\_\_\_\_

Post Office Address \_\_\_\_\_

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\_\_\_\_\_ (GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

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*NOTE: If the application filed more than 12 months from the filing date of this application is a PCT filing forming the basis for this application entering the United States as (1) the national stage, or (2) a continuation, divisional, or continuation-in-part, then also complete added pages to combined declaration and power of attorney for divisional, continuation or C-I-P application for benefit of the prior U.S. Or PCT application(s) under 35 U.S.C. § 120.*

## DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

### SIGNATURE(S)

*NOTE: Carefully indicate the family (or last) name as it should appear on the filing receipt and all other documents.*

**Full name of sole or first inventor**

Brian \_\_\_\_\_ D. \_\_\_\_\_ Kernan \_\_\_\_\_

(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature \_\_\_\_\_

Date \_\_\_\_\_ Country of Citizenship US \_\_\_\_\_

Residence 276 Massachusetts Avenue, Apt. 311, Arlington, MA 02474

Post Office Address same \_\_\_\_\_

**Full name of second joint inventor, if any**

Emanuel \_\_\_\_\_ M. \_\_\_\_\_ Sachs \_\_\_\_\_

(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature \_\_\_\_\_

Date \_\_\_\_\_ Country of Citizenship US \_\_\_\_\_

Residence 18 Moreland Avenue, Newton, MA 02459

Post Office Address same \_\_\_\_\_

**Full name of third joint inventor, if any**

Samuel \_\_\_\_\_ M. \_\_\_\_\_ Allen \_\_\_\_\_

(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature Samuel M. Allen \_\_\_\_\_

Date February 5, 2004 Country of Citizenship US \_\_\_\_\_

Residence 24 Alveston Street, Jamaica Plain, MA 02130

Post Office Address same \_\_\_\_\_

*(check proper box(es) for any of the following added page(s) that form a part of this declaration)*

Signature for fourth and subsequent joint inventors. NUMBER OF PAGES ADDED

1.

\* \* \*

Signature by administrator(trix), executor(trix) or legal representative for deceased or incapacitated inventor. NUMBER OF PAGES ADDED \_\_\_\_\_.

\* \* \*

Signature for inventor who refuses to sign or cannot be reached by person authorized under 37 CFR 1.47. NUMBER OF PAGES ADDED \_\_\_\_\_.

\* \* \*

Added page for signature by one joint inventor on behalf of deceased inventor(s) where legal representative cannot be appointed in time (37 CFR 1.47).

\* \* \*

Added pages to combined declaration and power of attorney for divisional, continuation, or continuation-in-part (C-I-P) application.

Number of pages added \_\_\_\_\_

\* \* \*

Authorization of attorney(s) to accept and follow instructions from representative.

\* \* \*

*(if no further pages form a part of this Declaration, then end this Declaration with this page and check the following item)*

This declaration ends with this page.

Full name of fourth joint inventor, if any

Adam \_\_\_\_\_ M. \_\_\_\_\_ Lorenz \_\_\_\_\_  
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature \_\_\_\_\_

Date \_\_\_\_\_ Country of Citizenship US \_\_\_\_\_

Residence 7 Buckingham Street, Somerville, MA 02143

Post Office Address same \_\_\_\_\_

Full name of fifth joint inventor, if any

\_\_\_\_\_ (GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature \_\_\_\_\_

Date \_\_\_\_\_ Country of Citizenship \_\_\_\_\_

Residence \_\_\_\_\_

Post Office Address \_\_\_\_\_

Full name of sixth joint inventor, if any

\_\_\_\_\_ (GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature \_\_\_\_\_

Date \_\_\_\_\_ Country of Citizenship \_\_\_\_\_

Residence \_\_\_\_\_

Post Office Address \_\_\_\_\_



## DECLARATION

(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL,  
DIVISIONAL, CONTINUATION OR C-I-P)

As a below named inventor, I hereby declare that:

### TYPE OF DECLARATION

This declaration is of the following type: (check one applicable item below)

- original
- design
- supplemental

*NOTE: If the declaration is for an international application being filed as a divisional, continuation or continuation-in-part application, do not check next item; check appropriate one of last three items.*

- national stage of PCT

*NOTE: If one of the following 3 items apply, then complete and also attach added pages for divisional, continuation or c-i-p.*

- divisional
- continuation
- continuation-in-part (C-I-P)

### INVENTORSHIP IDENTIFICATION

*WARNING: If the inventors are each not the inventors of all the claims, an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted.*

My residence, post office address and citizenship are as stated below next to my name. I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

### TITLE OF INVENTION

INFILTRATING A POWDER METAL SKELETON BY A SIMILAR ALLOY WITH DEPRESSED MELTING POINT EXPLOITING A PERSISTENT LIQUID PHASE AT EQUILIBRIUM, SUITABLE FOR FABRICATING STEEL PARTS

### SPECIFICATION IDENTIFICATION

the specification of which: (*complete (a), (b) or (c)*)

- (a)  is attached hereto.
- (b)  was filed on November 26, 2003 under Express Mail No. EV239312557US, attorney docket No. MIT 10327 US, and has been assigned Serial No. 10/723,989.

**NOTE:** *Amendments filed after the original papers are deposited with the PTO which contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 CFR 1.67.*

(c)  was described and claimed in PCT International Application No. \_\_\_\_\_ filed on \_\_\_\_\_ and as amended under PCT Article 19 on \_\_\_\_\_ (if any).

### **SUPPLEMENTAL DECLARATION (37 C.F.R. § 1.67(b))**

*(complete the following where a supplemental declaration is being submitted)*

I hereby declare that the subject matter of the  
 attached amendment  
 amendment filed on \_\_\_\_\_

was part of my/our invention before the filing date of the original application, above-identified, for such invention.

### **ACKNOWLEDGEMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR**

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information,

which is material to patentability as defined in 37, Code of Federal Regulations, § 1.56

*(also check the following items, if desired)*

and which is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable Examiner would consider it important in deciding whether to allow the application to issue as a patent, and  
 In compliance with this duty there is attached an information disclosure statement in accordance with 37 CFR 1.98.

### **PRIORITY CLAIM (35 U.S.C. § 119(a)-(d))**

**NOTE:** *"The claim to priority need be in no special form and may be made by the attorney or agent if the foreign application is referred to in the oath or declaration as required by § 1.63. The claim for priority and the certified copy of the foreign application specified in 35 U.S.C. 119(b) must be filed in the case of an interference (§ 1.630), when necessary to overcome the date of a reference relied upon by the examiner, when specifically required by the examiner, and in all other situations, before the patent is granted. If the claim for priority or the certified copy of the foreign application is filed after the date the issue fee is paid, it must be accompanied by a petition requesting entry and by the fee set forth in § 1.17(i). If the certified copy is not in the English language, a translation need not be filed except in the case of interference; or when necessary to overcome the date of a reference relied upon by the examiner; or when specifically required by the examiner, in which event an English language translation must be filed together with a statement that the translation of the certified copy is accurate." 37 C.F.R. § 1.55(a).*

I hereby claim foreign priority benefits under Title 35, United States Code, §§ 119(a)-(d) of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any

foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

(complete (d) or (e))

(d)  no such applications have been filed.  
(e)  such applications have been filed as follows.

*NOTE: Where item (c) is entered above and the international application which designated the U.S. Itself claimed priority check item (e), enter the details below and make the priority claim.*

**A. PRIOR FOREIGN/PCT APPLICATION(S) FILED WITHIN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS APPLICATION AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. § 119(a)-(d)**

Country (or indicate if PCT)	Application Number	Date of Filing (day, month, year)	Priority Claimed Under 37 USC 119
			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>
			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>
			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>
			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>
			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>

**CLAIM FOR BENEFIT OF PRIOR U.S. PROVISIONAL APPLICATION(S) (34 U.S.C. § 119(e))**

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

Provisional Application Number	Filing Date

**CLAIM FOR BENEFIT OF EARLIER US/PCT APPLICATION(S) UNDER 35 U.S.C. 120**

The claim for the benefit of any such applications are set forth in the attached ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR CONTINUATION-IN PART (C-I-P) APPLICATION.

**ALL FOREIGN APPLICATION(S), IF ANY FILED MORE THAN 12 MONTHS (6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION**

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*NOTE: If the application filed more than 12 months from the filing date of this application is a PCT filing forming the basis for this application entering the United States as (1) the national stage, or (2) a continuation, divisional, or continuation-in-part, then also complete added pages to combined declaration and power of attorney for divisional, continuation or C-I-P application for benefit of the prior U.S. Or PCT application(s) under 35 U.S.C. § 120.*

## DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

### SIGNATURE(S)

*NOTE: Carefully indicate the family (or last) name as it should appear on the filing receipt and all other documents.*

**Full name of sole or first inventor**

Brian \_\_\_\_\_ D. \_\_\_\_\_ Kernan \_\_\_\_\_  
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

**Inventor's signature** \_\_\_\_\_

**Date** \_\_\_\_\_ **Country of Citizenship** US \_\_\_\_\_

**Residence** 276 Massachusetts Avenue, Apt. 311, Arlington, MA 02474 \_\_\_\_\_

**Post Office Address** same \_\_\_\_\_  
\_\_\_\_\_

**Full name of second joint inventor, if any**

Emanuel \_\_\_\_\_ M. \_\_\_\_\_ Sachs \_\_\_\_\_  
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

**Inventor's signature** \_\_\_\_\_

**Date** \_\_\_\_\_ **Country of Citizenship** US \_\_\_\_\_

**Residence** 18 Moreland Avenue, Newton, MA 02459 \_\_\_\_\_

**Post Office Address** same \_\_\_\_\_  
\_\_\_\_\_

**Full name of third joint inventor, if any**

Samuel \_\_\_\_\_ M. \_\_\_\_\_ Allen \_\_\_\_\_  
(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

**Inventor's signature** \_\_\_\_\_

**Date** \_\_\_\_\_ **Country of Citizenship** US \_\_\_\_\_

**Residence** 24 Alveston Street, Jamaica Plain, MA 02130 \_\_\_\_\_

**Post Office Address** same \_\_\_\_\_  
\_\_\_\_\_

*(check proper box(es) for any of the following added page(s) that form a part of this declaration)*

Signature for fourth and subsequent joint inventors. NUMBER OF PAGES ADDED

1.

\* \* \*

Signature by administrator(trix), executor(trix) or legal representative for deceased or incapacitated inventor. NUMBER OF PAGES ADDED \_\_\_\_\_.

\* \* \*

Signature for inventor who refuses to sign or cannot be reached by person authorized under 37 CFR 1.47. NUMBER OF PAGES ADDED \_\_\_\_\_.

\* \* \*

Added page for signature by one joint inventor on behalf of deceased inventor(s) where legal representative cannot be appointed in time (37 CFR 1.47).

\* \* \*

Added pages to combined declaration and power of attorney for divisional, continuation, or continuation-in-part (C-I-P) application.

Number of pages added \_\_\_\_\_

\* \* \*

Authorization of attorney(s) to accept and follow instructions from representative.

\* \* \*

*(if no further pages form a part of this Declaration, then end this Declaration with this page and check the following item)*

This declaration ends with this page.

Full name of fourth joint inventor, if any

Adam \_\_\_\_\_ M. \_\_\_\_\_ Lorenz \_\_\_\_\_

(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature 

Date 3/29/09 Country of Citizenship US

Residence 7 Buckingham Street, Somerville, MA 02143

Post Office Address same

Full name of fifth joint inventor, if any

(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature \_\_\_\_\_

Date \_\_\_\_\_ Country of Citizenship \_\_\_\_\_

Residence \_\_\_\_\_

Post Office Address \_\_\_\_\_

Full name of sixth joint inventor, if any

(GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)

Inventor's signature \_\_\_\_\_

Date \_\_\_\_\_ Country of Citizenship \_\_\_\_\_

Residence \_\_\_\_\_

Post Office Address \_\_\_\_\_



Patent Office Rules and Practice [R64 7/95], VOL \*\*, FORM 12-2

Attorney's Docket No. MIT 10327 US

## PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Brian D. Kernan, Emanuel M. Sachs, Samuel M. Allen and Adam M. Lorenz

Serial No.: 10/723,989 Group No.: 1742  
Filed: November 26, 2003 Examiner:  
Conf. No. 7978  
For: INFILTRATING A POWDER METAL SKELETON BY A SIMILAR ALLOY WITH  
DEPRESSED MELTING POINT EXPLOITING A PERSISTENT LIQUID PHASE AT  
EQUILIBRIUM, SUITABLE FOR FABRICATING STEEL PARTS

Patent No: Issued:

**\*Note** Insert name(s) of inventor(s) and title also for patent.

**Commissioner for Patents  
PO. Box 1450  
Alexandria, VA 22313-1450**

**POWER OF ATTORNEY BY ASSIGNEE OF ENTIRE INTEREST  
(REVOCATION OF PRIOR POWERS)**

As assignee of record of the entire interest of the above identified

[X] application,

[ ] patent,

## REVOCATION OF PRIOR POWERS OF ATTORNEY

all powers of attorney previously given are hereby revoked and

## NEW POWER OF ATTORNEY

the following attorney(s) and/or agent(s) are hereby appointed to prosecute and transact all business in the Patent and Trademark Office connected therewith.

*(list name and registration number)*

Steven J. Weissburg Reg. No. 31-581

*(check the following item, if applicable)*

[ ] Attached as part of this power of attorney is the authorization of the above-named attorney(s) to accept and follow instructions from my representative(s).

SEND CORRESPONDENCE TO:  
Steven J. Weissburg  
238 Main Street  
Suite 303  
Cambridge, MA 02142

DIRECT TELEPHONE CALLS TO:  
Telephone: (617) 354-9343  
Fax: (617) 354-9377  
Cust. No.: 021403

Massachusetts Institute of Technology  
(type or print identity of assignee of entire interest)  
77 Massachusetts Avenue  
(Address)  
Cambridge, MA 02139

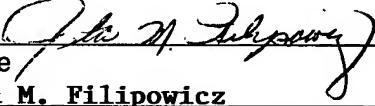
Recorded in PTO on \_\_\_\_\_  
Reel \_\_\_\_\_  
Frame \_\_\_\_\_  
 Recorded herewith

### ASSIGNEE CERTIFICATION

Attached to this power is a "STATEMENT UNDER 37 CFR 3.73(b)".

Date

4/20/04

  
Signature  
Rita M. Filipowicz  
(type or print name of person authorized to sign on  
behalf of assignee)  
Title  
Patent Administrator

NOTE: The assignee of the entire interest may revoke previous powers and be represented by an attorney of his or her selection. 37 CFR 1.36.

(check the following item if it forms a part of this power of attorney)

Added page-Authorization of attorney(s) to accept and follow instructions from  
representative.



## Statement Under 37 CFR 3.73(b)

Applicant: Brian D. Kerman, Emanuel M. Sachs, Samuel M. Allen and Adam M. Lorenz  
Application No.: 10/723,989 Filed: November 26, 2003  
Conf. No. 7978  
For: INFILTRATING A POWDER METAL SKELETON BY A SIMILAR ALLOY WITH  
DEPRESSED MELTING POINT EXPLOITING A PERSISTENT LIQUID PHASE AT  
EQUILIBRIUM, SUITABLE FOR FABRICATING STEEL PARTS  
Massachusetts Institute of Technology , a Corporation  
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership,  
university, government agency, etc.)

The above-referenced Massachusetts Institute of Technology is the assignee of the entire right, title and interest in the above-mentioned patent application, and hereby seeks to take action in the PTO in this matter.

### Basis of Assignee's interest

Ownership by the assignee is established as follows:

A.  An assignment from the inventor(s) of the patent application identified above. The assignment is being recorded in the Patent and Trademark Office. A copy thereof is attached.

OR

B.  A chain of title from the inventor(s), of the patent application identified above, to the current assignee as shown below:

1. From: \_\_\_\_\_ To: \_\_\_\_\_  
The document was recorded in the Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is  
attached.

2. From: \_\_\_\_\_ To: \_\_\_\_\_  
The document was recorded in the Patent and Trademark Office at  
Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is  
attached.

Additional documents in the chain of title are listed on a supplemental sheet.

Copies of assignments or other documents in the chain of title are attached.

I, the person signing below, state that I am empowered to sign this statement on behalf of the assignee.

Date: April 20, 2004  
Name: Rita M. Filipowicz  
Title: Patent Administrator  
Signature: Rita M. Filipowicz

## ASSIGNMENT

I, Brian D. Kernan, of 276 Massachusetts Ave., Apt. 311, Arlington, MA 02474;  
I, Emanuel M. Sachs, of 18 Moreland Avenue, Newton, MA 02459;  
I, Samuel M. Allen, of 24 Alveston Street, Jamaica Plain, 02130; and  
I, Adam M. Lorenz, of 7 Buckingham Street, Somerville, MA 02143;  
jointly and severally referred to below as an "ASSIGNOR", have certain rights in  
an invention entitled INFILTRATING A POWDER METAL SKELETON BY A SIMILAR ALLOY  
WITH DEPRESSED MELTING POINT EXPLOITING A PERSISTENT LIQUID PHASE AT  
EQUILIBRIUM, SUITABLE FOR FABRICATING STEEL PARTS, and which is found in a U.S.  
Patent Application U.S.S.N. 10/723,989, executed by each ASSIGNOR, and filed on  
November 26, 2003, with the United States Patent and Trademark Office (the  
"INVENTION"). In consideration of One Dollar and other valuable consideration  
paid to me by THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY, a corporation of  
Massachusetts, having its principal place of business at 77 Massachusetts Avenue,  
Cambridge, Mass, 02139, ("ASSIGNEE") the receipt of which is hereby acknowledged,  
ASSIGNOR does hereby sell, assign and transfer unto said ASSIGNEE its successors  
and assigns, ASSIGNOR'S entire right, title and interest for the United States of  
America and all foreign countries including all rights of priority in said  
INVENTION or improvement(s) in the INVENTION, patent application(s) and patent(s)  
listed above and in all Letters Patent of the United States and all foreign  
countries which may or shall be granted on said INVENTION(s), or any parts  
thereof, or on said applications, or any divisional, continuing, reissue or other  
applications based thereon. And ASSIGNOR agrees, for ASSIGNOR and ASSIGNOR'S  
heirs, successors and assigns with said ASSIGNEE and its successors and assigns  
but at its expense and charges, hereafter to do all acts necessary or proper to  
secure the grant of Letters Patent in the United States and in all other countries  
to said ASSIGNEE, with specifications and claims in such form as shall be approved  
by the counsel of said ASSIGNEE and to vest and confirm in said ASSIGNEE, its  
successors and assigns, the legal title to all such patents.

And ASSIGNOR does hereby authorize and request the Commissioner of Patents  
and Trademarks of the United States to issue such Letters Patent as shall be  
granted upon said application or applications based thereon to said ASSIGNEE, its  
successors and assigns.

WITNESS my hand and seal:

ASSIGNOR: Brian D. Kernan

SIGNATURE



2/4/04

The above named Brian D. Kernan, personally appeared and acknowledged the  
foregoing instrument to be his free act and deed, before me, on the date  
indicated.

Notary Public

Steven J. Weissburg 2/4/04

## ASSIGNMENT

I, Brian D. Kernan, of 276 Massachusetts Ave., Apt. 311, Arlington, MA 02474;  
I, Emanuel M. Sachs, of 18 Moreland Avenue, Newton, MA 02459;  
I, Samuel M. Allen, of 24 Alveston Street, Jamaica Plain, 02130; and  
I, Adam M. Lorenz, of 7 Buckingham Street, Somerville, MA 02143;  
jointly and severally referred to below as an "ASSIGNOR", have certain rights in  
an invention entitled INFILTRATING A POWDER METAL SKELETON BY A SIMILAR ALLOY  
WITH DEPRESSED MELTING POINT EXPLOITING A PERSISTENT LIQUID PHASE AT  
EQUILIBRIUM, SUITABLE FOR FABRICATING STEEL PARTS, and which is found in a U.S.  
Patent Application U.S.S.N. 10/723,989, executed by each ASSIGNOR, and filed on  
November 26, 2003, with the United States Patent and Trademark Office (the  
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paid to me by THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY, a corporation of  
Massachusetts, having its principal place of business at 77 Massachusetts Avenue,  
Cambridge, Mass, 02139, ("ASSIGNEE") the receipt of which is hereby acknowledged,  
ASSIGNOR does hereby sell, assign and transfer unto said ASSIGNEE its successors  
and assigns, ASSIGNOR'S entire right, title and interest for the United States of  
America and all foreign countries including all rights of priority in said  
INVENTION or improvement(s) in the INVENTION, patent application(s) and patent(s)  
listed above and in all Letters Patent of the United States and all foreign  
countries which may or shall be granted on said INVENTION(s), or any parts  
thereof, or on said applications, or any divisional, continuing, reissue or other  
applications based thereon. And ASSIGNOR agrees, for ASSIGNOR and ASSIGNOR'S  
heirs, successors and assigns with said ASSIGNEE and its successors and assigns  
but at its expense and charges, hereafter to do all acts necessary or proper to  
secure the grant of Letters Patent in the United States and in all other countries  
to said ASSIGNEE, with specifications and claims in such form as shall be approved  
by the counsel of said ASSIGNEE and to vest and confirm in said ASSIGNEE, its  
successors and assigns, the legal title to all such patents.

And ASSIGNOR does hereby authorize and request the Commissioner of Patents and Trademarks of the United States to issue such Letters Patent as shall be granted upon said application or applications based thereon to said ASSIGNEE, its successors and assigns.

WITNESS my hand and seal:

ASSIGNOR: Emanuel M. Sachs

**SIGNATURE**

DATE: \_\_\_\_\_

3/11/04

The above named Emanuel M. Sachs personally appeared and acknowledged the foregoing instrument to be his free act and deed, before me, on the date indicated.

Notary Public



Ben J. Warkly -

## ASSIGNMENT

I, Brian D. Kernan, of 276 Massachusetts Ave., Apt. 311, Arlington, MA 02474;  
I, Emanuel M. Sachs, of 18 Moreland Avenue, Newton, MA 02459;  
I, Samuel M. Allen, of 24 Alveston Street, Jamaica Plain, 02130; and  
I, Adam M. Lorenz, of 7 Buckingham Street, Somerville, MA 02143;  
jointly and severally referred to below as an "ASSIGNOR", have certain rights in  
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WITH DEPRESSED MELTING POINT EXPLOITING A PERSISTENT LIQUID PHASE AT  
EQUILIBRIUM, SUITABLE FOR FABRICATING STEEL PARTS, and which is found in a U.S.  
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Massachusetts, having its principal place of business at 77 Massachusetts Avenue,  
Cambridge, Mass, 02139, ("ASSIGNEE") the receipt of which is hereby acknowledged,  
ASSIGNOR does hereby sell, assign and transfer unto said ASSIGNEE its successors  
and assigns, ASSIGNOR'S entire right, title and interest for the United States of  
America and all foreign countries including all rights of priority in said  
INVENTION or improvement(s) in the INVENTION, patent application(s) and patent(s)  
listed above and in all Letters Patent of the United States and all foreign  
countries which may or shall be granted on said INVENTION(s), or any parts  
thereof, or on said applications, or any divisional, continuing, reissue or other  
applications based thereon. And ASSIGNOR agrees, for ASSIGNOR and ASSIGNOR'S  
heirs, successors and assigns with said ASSIGNEE and its successors and assigns  
but at its expense and charges, hereafter to do all acts necessary or proper to  
secure the grant of Letters Patent in the United States and in all other countries  
to said ASSIGNEE, with specifications and claims in such form as shall be approved  
by the counsel of said ASSIGNEE and to vest and confirm in said ASSIGNEE, its  
successors and assigns, the legal title to all such patents.

And ASSIGNOR does hereby authorize and request the Commissioner of Patents  
and Trademarks of the United States to issue such Letters Patent as shall be  
granted upon said application or applications based thereon to said ASSIGNEE, its  
successors and assigns.

WITNESS my hand and seal:

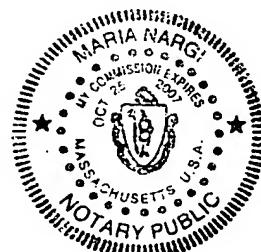
ASSIGNOR: Samuel M. Allen

SIGNATURE Samuel M. Allen DATE: February 5, 2004

The above named Samuel M. Allen personally appeared and acknowledged the  
foregoing instrument to be his free act and deed, before me, on the date  
indicated.

Notary Public

Maria Nargi 2/5/04  
Maria Nargi



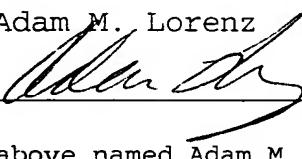
## ASSIGNMENT

I, Brian D. Kernan, of 276 Massachusetts Ave., Apt. 311, Arlington, MA 02474;  
I, Emanuel M. Sachs, of 18 Moreland Avenue, Newton, MA 02459;  
I, Samuel M. Allen, of 24 Alveston Street, Jamaica Plain, 02130; and  
I, Adam M. Lorenz, of 7 Buckingham Street, Somerville, MA 02143;  
jointly and severally referred to below as an "ASSIGNOR", have certain rights in  
an invention entitled INFILTRATING A POWDER METAL SKELETON BY A SIMILAR ALLOY  
WITH DEPRESSED MELTING POINT EXPLOITING A PERSISTENT LIQUID PHASE AT  
EQUILIBRIUM, SUITABLE FOR FABRICATING STEEL PARTS, and which is found in a U.S.  
Patent Application U.S.S.N. 10/723,989, executed by each ASSIGNOR, and filed on  
November 26, 2003, with the United States Patent and Trademark Office (the  
"INVENTION"). In consideration of One Dollar and other valuable consideration  
paid to me by THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY, a corporation of  
Massachusetts, having its principal place of business at 77 Massachusetts Avenue,  
Cambridge, Mass., 02139, ("ASSIGNEE") the receipt of which is hereby acknowledged,  
ASSIGNOR does hereby sell, assign and transfer unto said ASSIGNEE its successors  
and assigns, ASSIGNOR'S entire right, title and interest for the United States of  
America and all foreign countries including all rights of priority in said  
INVENTION or improvement(s) in the INVENTION, patent application(s) and patent(s)  
listed above and in all Letters Patent of the United States and all foreign  
countries which may or shall be granted on said INVENTION(s), or any parts  
thereof, or on said applications, or any divisional, continuing, reissue or other  
applications based thereon. And ASSIGNOR agrees, for ASSIGNOR and ASSIGNOR'S  
heirs, successors and assigns with said ASSIGNEE and its successors and assigns  
but at its expense and charges, hereafter to do all acts necessary or proper to  
secure the grant of Letters Patent in the United States and in all other countries  
to said ASSIGNEE, with specifications and claims in such form as shall be approved  
by the counsel of said ASSIGNEE and to vest and confirm in said ASSIGNEE, its  
successors and assigns, the legal title to all such patents.

And ASSIGNOR does hereby authorize and request the Commissioner of Patents  
and Trademarks of the United States to issue such Letters Patent as shall be  
granted upon said application or applications based thereon to said ASSIGNEE, its  
successors and assigns.

WITNESS my hand and seal:

ASSIGNOR: Adam M. Lorenz

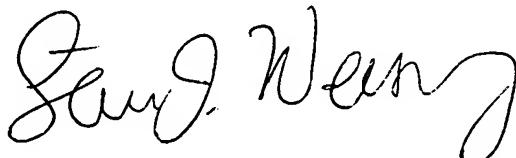
SIGNATURE 



DATE: 3/29/04

The above named Adam M. Lorenz personally appeared and acknowledged the  
foregoing instrument to be his free act and deed, before me, on the date  
indicated.

Notary Public



Applicant or Patentee: Brian D. Kernan et al  
Serial or Patent No.: 10/723,989 Attorney's Docket No.: 10327 US  
Filed or Issue Date: November 26, 2003  
For: Infiltrating a Powder Metal Skeleton by a Similar Alloy With Depressed Melting Point Exploiting a Persistent Liquid Phase at Equilibrium, Suitable for Fabricating Steel Parts



**STATEMENT REGARDING SMALL ENTITY STATUS  
NONPROFIT ORGANIZATION**

I hereby declare that I am an official empowered to act on behalf of the nonprofit organization identified below:

**NAME OF ORGANIZATION:** Massachusetts Institute of Technology

**ADDRESS OF ORGANIZATION:** 77 Massachusetts Avenue  
Cambridge, MA 02139

**TYPE OF ORGANIZATION**

(X) UNIVERSITY OR OTHER INSTITUTION OF HIGHER EDUCATION  
( ) TAX EXEMPT UNDER INTERNAL REVENUE SERVICE CODE  
(26 USC 501(a) and 501(c) (3))  
( ) NONPROFIT SCIENTIFIC OR EDUCATIONAL UNDER STATUTE OF STATE OF THE UNITED STATES OF AMERICA  
(NAME OF STATE \_\_\_\_\_)  
(CITATION OF STATUTE \_\_\_\_\_)  
( ) WOULD QUALIFY AS TAX EXEMPT UNDER INTERNAL REVENUE SERVICE CODE (26 USC 501(a) and 501(c) (3)) IF LOCATED IN THE UNITED STATES OF AMERICA  
( ) WOULD QUALIFY AS NONPROFIT SCIENTIFIC OR EDUCATIONAL UNDER STATUTE OF STATE OF THE UNITED STATES OF AMERICA IF LOCATED IN THE UNITED STATES OF AMERICA  
(NAME OF STATE \_\_\_\_\_)  
(CITATION OF STATUTE \_\_\_\_\_)

I hereby declare that the nonprofit organization identified above qualifies as a nonprofit organization as defined in 37 CFR 1.9(e) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code with regard to the invention entitled: Infiltrating a Powder Metal Skeleton by a Similar Alloy With Depressed Melting Point Exploiting a Persistent Liquid Phase at Equilibrium, Suitable for Fabricating Steel Parts by inventors Brian D. Kernan et al described in

( ) the specification filed herewith.  
(X) application serial no. 10/723,989, filed November 26, 2003  
( ) patent no. \_\_\_\_\_, issued \_\_\_\_\_.

I hereby declare that rights under contract or law have been conveyed to and remain with the nonprofit organization with regard to the above identified invention.

If the rights held by the nonprofit organization are not exclusive, each individual, concern or organization having rights to the invention is listed below\* and no rights to the invention are held by any person, other than the inventor, who could not qualify as an independent inventor under 37 CFR 1.9 (c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under CFR 1.9(e). \*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
( )INDIVIDUAL ( )SMALL BUSINESS CONCERN ( )NONPROFIT ORGANIZATION

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
( )INDIVIDUAL ( )SMALL BUSINESS CONCERN ( )NONPROFIT  
ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING	Rita M. Filipowicz
TITLE IN ORGANIZATION	Patent Administrator Technology Licensing Office
ADDRESS OF PERSON SIGNING	77 Massachusetts Avenue, Room NE25-230 Cambridge, MA 02139

SIGNATURE Rita M. Filipowicz DATE 4/20/04